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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/500,304	02/08/2000	Francoise Groliere	PHF-99,508	2404

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
LAROSE, COLIN M	

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/500,304	GROLIERE, FRANCOISE	
	Examiner	Art Unit	
	Colin M. LaRose	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6-11* is/are allowed.

6)☒ Claim(s) *1,2,4 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Arguments and Amendments

1. Applicants' amendments and arguments filed 19 July 2004, have been entered and made of record.

Allowable Subject Matter

2. Claims 6 and 7 were amended to denote that the selected segment comprises "at least three" consecutive pixels; a boundary then divides the segment into two parts, and filtering is carried out on the segment when pixels at the ends of the segment have chrominance components that agree with a similarity criterion.

The closest prior art of record (US 5,796,875 by Read) does not disclose or suggest such a feature. Read teaches that two pixels (B & C, figure 3) at the ends of a segment are compared to determine whether filtering should be carried out on the segment. However, Read's segment only consists of two pixels. The present invention proposes, e.g., selecting a segment of at least three pixels that crosses a boundary, such as segment A-B-C, and then comparing pixels A & C to determine whether the segment should be filtered. See figures 2-3 of the present invention.

For these reasons, claims 6-11 are allowable.

Response to Amendments and Arguments for Claim 1

3. Regarding claim 1, Applicant asserts that Examiner's interpretation of figure 3 of Read as applied to the claim language is unclear and relies "on some kind of unbelievable abstraction" in construing a part of a 2-pixel segment as consisting of two pixels. However, given the present

claim language, Examiner maintains that the proposed interpretation of Read is in fact reasonable.

The claim calls for dividing a segment of pixels into "two parts," whereby a boundary divides the segment. Then, filtering of the segment is effected "only if the two pixels at the ends of a part of said segment" agree with a similarity criterion. Examiner maintains that interpreting Read's pixels B & C as being "two pixels at the ends of a part of said segment" is valid. The claim merely calls for the two pixels to be at the ends of a part of the segment. Although pixels B & C make up the entire segment, it is not unreasonable to view these pixels as comprising the "whole part" of the segment, where pixel C is at the right end and pixel B is at the left end of the segment.

This interpretation is reasonable in view of the fact that "a part of said segment" does not necessarily refer to the previously recited "two parts." Had the claim stated that filtering is effected "only if the two pixels at the ends of one of said two parts of said segment" agree with a similarity criterion, then this interpretation would likely be unreasonable. However, as the claim stands, "a part" of the segment does not preclude a reading that embraces "the whole part" of the segment. Applicant has not specified that "a part" refers to one of the aforementioned "two parts," or that "a part" is necessarily smaller than the entire segment.

For these reasons, the rejection of claim 1 is maintained. Claim 1 would be allowable if it were amended in accordance with claims 6 and 7 to specify that the segment contains at least three pixels. This modification would eliminate all doubts as to whether the claim reads on a 2-pixel segment. However, Examiner advises that such a modification to claim 1 would possibly be faced with a double-patenting (or obviousness-type double-patenting) issue with claim 11.

Double Patenting

4. The previous double-patenting objection to claim 7 is withdrawn in view of Applicant's amendment to claim 7.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 2, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,796,875 by Read in view of U.S. Patent 6,236,764 by Zhou.

Regarding claim 1, Read discloses a method/device (figure 1A) for decoding data representing a sequence of pictures previously divided into blocks and coded, comprising, for each successive picture, at least the steps of/means for:

decoding said data (20);

filtering the decoded data (30);

said filtering step being applied to at least one pixel component of a selected segment of consecutive pixels located on a single line or column of the current picture and on both sides of a boundary between two blocks, so that the boundary divides the segment into two parts (figure 3: segment BC consists of two pixels located on the same line and divided by a boundary into a right part ("C") and a left part ("B")),

wherein said filtering step is applied only if the pixels at the ends of said segment have components that agree with a similarity criterion (step 215, figure 2: filtering is only applied if

the difference between boundary pixels B and C is less than a threshold; in addition, pixels B and C are at the ends of the segment),

wherein said filtering step is applied only if the two pixels at the ends of a part of said segment have components that agree with a similarity criterion (step 215, figure 2: filtering is only applied if the difference between boundary pixels B and C is less than a threshold; pixels B and C are at the ends of respective parts of the segment (i.e. C is at the end of the right part, and B is at the end of the left part); together, pixels B nad C comprise the whole part of the segment, with each pixel being at an end of the whole part).

Read discloses that "the difference between pixels" is determined (column 3, lines 43-46).

However, Read does not expressly disclose determining the differences on the bases of luminance and chrominance.

Zhou discloses a deblocking filtering system in the MPEG environment, similar to that of Read, which operates in the ITU H.261 environment. Zhou performs comparisons of boundary pixels to determine whether boundary filtering should occur (figure 5). In particular, Zhou teaches that boundary comparisons for luminance and chrominance components are performed independently. As shown in figure 5, boundary comparison and filtering steps are carried out for the luminance component, and then the same steps are repeated (110) for the chrominance components. Both the MPEG and H.261 formats utilize a 4:2:0 coding scheme as shown in figures 1C and 1D of Zhou. Accordingly, Zhou notes there are no intra-macroblock boundaries for the chroma components due to the chrominance channels being encoded at a lower spatial

resolution than the luminance channel (column 9, lines 60-67). Therefore, intra-macroblock deblocking filtering for the chroma components is unnecessary.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Read by Zhou to achieve the claimed invention by performing boundary pixel comparisons on the bases of luminance and chrominance components since Zhou teaches that images encoded by the conventional 4:2:0 encoding standards are advantageously deblocked by processing the luminance and chrominance components separately.

Regarding claim 4, Read teaches the elements of claim 1, wherein the filtering is applied only if, for each part of the segment, the two pixels at the ends of the part of said segment have luminance components that agree with a similarity criterion (step 215, figure 2: filtering is only performed if the (luminance) difference between boundary pixels B and C, which are each at an end of the segment, is less than a threshold).

Regarding claim 2, the combination of Read and Zhou, as applied to claim 1, teaches comparing the respective chrominance components and filtering only if the difference is lower than a threshold, as claimed.

Regarding claim 5, Read discloses said filtering step is applied only if the two consecutive pixels of said segment located on each side of the boundary have luminance components that agree with a similarity criterion (step 215, figure 2: filtering is only performed if the (luminance) difference between boundary pixels B and C, which are on each side of the boundary, is less than a threshold).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (703) 306-3489. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (703) 306-0377.

CML
Group Art Unit 2623
15 December 2004